

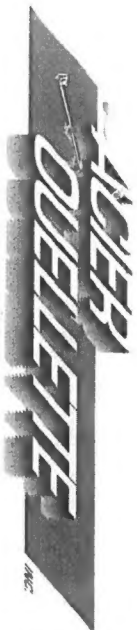


Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit
PO039156	ACI001-VC	1	1	Net 30	MT-HRS-P-0.500	Hot Rolled Steel Plate 0.500" (44W) receive sf				32	3/7/2018	32		S048042	Stock	3/5/2018	\$ 13.17 / sf
		2			M6061T6B0.500X00.500	6061T6 Bar 0.500 X 0.500 : MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft				12			S048043	Stock	3/5/2018	\$ 0.86 / ft	
		5			MT-HRS-P-0.250	Hot Rolled Steel Plate 0.250" (44W) : Hot Rolled Steel Plate 0.250" thick				32		32		S048044	Stock	3/5/2018	\$ 6.33 / ft
		6			MT-4140QT-R1.750	AISI 4140 Quenched & Tempered Steel Round Bar 1.750" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT				12		12		S048045	Stock	3/5/2018	\$ 18.08 / ft
		8			M4140N-R0.750	4140 Steel Round Bar 0.750" receive ft						12		S048046	Stock	3/5/2018	\$ 2.49 / ft
Total:										100		100					

Plex 3/5/2018 4:14 PM Dart.Dubois.Pascal



ACIER OUELLETTE INC.

935, Boul. du Hâvre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl.: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl.: 514-336-4246 Ext.: 866-456-4242

DELIVERY - CLIENT

Copy

CO00076601

Billed to

DART AEROSPACE LTD
1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,

Att: CHANTAL LAVOIE Tél.: 613-632-5200

Instruction F-M

Delivery Route 5

Page 1

Credit Terme

Net 30 Days

Salesman

Processed by

Josianne Bourdon

Your order N°

039156

Delivery date

2018/03/05

Date

2018/03/01

Customer N°

CL10001056

Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only				
				CMD	EXP	B/O	IN	I	S	C	OUT
1 PLATE 44W 1/2 (4 X 8) P44-1248 2 X 4' X 4' HEAT : 724995 20100410 COUPE AU FEU FEU 4059 3	652.80	32.00	PI2 \$CLB		2X		32 #2				
		1.00	UN		4'X4'						

Total Weight (Lbs) : 652.80

NIR : R-109516-6

Conditions :
All sold and delivered materials remain the property of "Acier Ouellette Inc" until payment is made in full, complete and cashed. All lost materials are at the buyer's expense. The warranty offered by "Acier Ouellette Inc." is the same as offered and honored by the manufacturer and his warranty is transferred by "Acier Ouellette Inc." to the client. The buyer hereby accepts to respect the following conditions: Net 30 days from billing date and the buyer accepts to pay administration charges of 2% per month (24% per annum) on all past due amounts over 30 days. Any default in respect with this contract will lead to payment by acceleration and permits to the seller, at his choice to claim for the balance due or the repossession of the goods sold. All claims must be made within five (5) days with this document enclosed. Any merchandise that has been damaged, cut or modified cannot be returned. All goods returned must be with our authorization and are subject to a 25% restocking charge.

Total (\$CAD)

Prepared By : M.H.	Verified By : M.H.	Delivered By : [Signature]	Time	Customer's Signature	Date 18/03/05
-----------------------	-----------------------	-------------------------------	------	----------------------	------------------



DELIVERY - CLIENT

Copy

CO0007659

ACIER OUELLETTE INC.

935, Boul. du Hâvre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Billed to

DART AEROSPACE LTD
1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,
OUELLETTE VALLEYFIELD

Att: CHANTAL LAVOIE Tél.: 613-632-5200

Net 30 Days

Instruction F-M

Delivery Route 5

Page 1

Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only			
				CMD	EXP	B/O	IN	I	S	C
1 SQUARE ALU 1/2 6061-T6 * CAL-12 1778 1 X 12' HEAT: 33931	3.60	12.00	PI_\$CLB		1 X 20'		20' 11 11 9-89			MAR 04 2018
2 PLATE 44W 1/4 (4 X 8) P44-1448 4074 2 X 4' X 4' HEAT: W7G550 SHEAR CUT SHEAR 2	326.40	32.00	PI2_\$CLB UN		2 X 4' X 4'		32' 11 11 9-89			MAR 04 2018
3 ROUND 4140 HEAT TREAT 1 3/4 (R) * R4140-134H 4911 1 X 12' HEAT: 75069193	98.14	12.00	PI_\$CLB		1 X 12'		12' 11 11 9-89			MAR 04 2018

NIR : R-109516-6

Next Page.

DELIVERY - CLIENT

Copy

CO0007659

ACIER OUELLETTE INC.
935, Boul. du Havre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Customer N° CL10001056
Date 2018/03/01
Delivery date 2018/03/05
Your order N° 039156
Processed by Josianne Bourdon
Salesman
Carrier OUELLETTE VALLEYFIELD
Credit Terme Net 30 Days
Page 2

Shipped to

Billed to
DART AEROSPACE LTD
1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Att : CHANTAL LAVOIE Tél.: 613-632-5200

Instruction	F-M	Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only		
						CMD	EXP	B/O	IN	I	S C
		COUPE A LA SCIE SCIE 1		1.00	UN						
4		ROUND 4140 HEAT TREAT 3/4 (R) * R4140-34H 4949 1 X 12' R/L HEAT: M52574	18.02	12.00	PI_\$CLB	1X 12'			1X204" 12'	X	8' 1"

NIR : R-109516-6

Total Weight (Lbs) : 446.16

Conditions :
All sold and delivered materials remain the property of "Acier Ouellette Inc." until payment is made in full, complete and cashed. All lost materials are at the buyer's expense. The warranty offered by "Acier Ouellette Inc." is the same as offered and honored by the manufacturer and his warranty is transferred by "Acier Ouellette Inc." to the client. The buyer hereby accepts to respect the following conditions: Net 30 days from billing date and the buyer accepts to pay administration charges of 2% per month (24% per annum) on all past due amounts over 30 days. Any default in respect with this contract will lead to payment by acceleration and permits to the seller, at his choice to claim for the balance due or the repossession of the goods sold. All claims must be made within five (5) days with this document enclosed. Any merchandise that has been damaged, cut or modified cannot be returned. All goods returned must be with our authorization and are subject to a 25% restocking charge.

Total (\$CAD)

Prepared By : SV/MT	Verified By : NM	Delivered By : [Signature]	Time : 18:03:03	Date : 18/03/03
------------------------	---------------------	-------------------------------	--------------------	--------------------

Customer's Signature



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039156**

Supplier: ACI001-VC
Acier Ouellette Inc.
935 Boul. Du Havre
Valleyfield
QC
J6S 5L1 Canada
Phone: 800 667 4248
Fax: 450 377 5696

PO No: PO039156

PO Date: 3/1/18

Due Date: 3/7/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments: quote no: sou0088895, sou0088998

REVISED

E-MAILED
MAR 02 2018

Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	MT-HRS-P-0.500		Hot Rolled Steel Plate 0.500" (44W) receive sf	Firmed	3/7/18	32 sf	0 sf	32 sf	\$13.167187/sf	\$421.35
Line Item Note note: please cut sheet in two										
2	M6061T6B0.500X00.500		6061T6 Bar 0.500 X 0.500 : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ- A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ- A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft	Firmed	3/7/18	12 ft	0 ft	12 ft	\$0.8575/ft	\$10.29
3	MT-4140-B-2.250X8.000		AISI 4140 Steel Bar : Material: AISI 4140 STEEL BAR AS PER ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S-5626 MIN. ROCKWELL C = 28 RC MAX. ROCKWELL C = 32 RC NOTE: cut material in 12" length	Firmed	3/16/18	6 ft	0 ft	6 ft	\$153.73166/ft	\$922.39

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
4	MT-4140-B-0.500x3.500		4140 Steel Bar 0.500 X 3.500 : AISI 4140 STEEL BAR PER ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S-5626 MINIMUM ROCKWELL C = 28 RC MAXIMUM ROCKWELL C = 32 RC receive ft	Firmed	3/7/18	6 ft	0 ft	6 ft	\$27.50/ft	\$165.00
5	MT-HRS-P-0.250		Hot Rolled Steel Plate 0.250" (44W) : Hot Rolled Steel Plate 0.250" thick	Firmed	3/7/18	32 ft	0 ft	32 ft	\$6.33188/ft	\$202.62
Line Item Note note: please cut sheet in two										
6	MT-4140QT-R1.750		AISI 4140 Quenched & Tempered Steel Round Bar 1.750" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	3/7/18	12 ft	0 ft	12 ft	\$18.07666/ft	\$216.92
7	MT-4140QT-R2.375		MT-4140 QT-R2.375 : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	3/7/18	12 ft	0 ft	12 ft	\$46.66666/ft	\$560.00
8	M4140N-R0.750		4140 Steel Round Bar 0.750" receive ft	Firmed	3/7/18	12 ft	0 ft	12 ft	\$2.4925/ft	\$29.91
9	M6061T6S2.250X13.500		6061-T6 Sheet 2.250" Thick x 13.500" Wide : MATERIAL: 6061-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/11 OR AMS-QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209	Firmed	3/7/18	6 ft	0 ft	6 ft	\$171.315/ft	\$1027.89
Grand Total:										\$3,556.37

Order Notes

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 3/2/18 8:40 AM dart.lavoie.chantal

**ACIER OUELLETTE INC.**

935, Boul. du Havre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Quotation**SOU0088998****Billed to**

DART AEROSPACE LTD
1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,

Att : CHANTAL LAVOIE Tél.: 613-632-5200

Customer N° CLI0001056**Date** 2018/02/27**Revision N°** 0**Prices valid until** 2018/03/06**Your Order N°****Processed by** Josianne Bourdon**Salesman** JOSIANNE**Carrier** OUELLE SDV**Credit Terms** Net 30 Days**Page** 1

Product N° and description	Weight	Qty	U/M	Qty	U/M	Price	Pcs Nb	Price	Amount
PLATE 44W 1/2 (4 X 8) P44-1248 4059 2 X 4' X 4' STOCK COUPE AU FEU FEU 3	652.80	32.00	PI2_\$CLB	1.00	UN		2.00	210.675	421.35
		1.00	UN	1.00					
SURCHARGE ENERGETIQUE FRAIS_ENERGETIQUE			\$						3.95

MT-HRS-P-0.500
x32.
sent in hold

OK
13.167187 aSF

Total Weight (Lbs) 652.80**Important**

This offer is based on availability and current pricing conditions that may be revised upon reception of the order.

This offer is subject and conditional to credit approval.

Approved and Accepted by :

Date :

Sub-total 425.30

TVH-13 • 55.29

Total (\$CAD) 480.59

**ACIER OUELLETTE INC.**

935, Boul. du Havre

Salaberry de Valleyfield (Québec) J6S 5L1

Tél.: 450-377-4248 Mtl: 514-336-4248 Ext.: 800-667-4248

Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Quotation**SOU0088895****Billed to**

DART AEROSPACE LTD

1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7**Shipped to**

, Ontario,

Att : CHANTAL LAVOIE Tél.: 613-632-5200

Customer N°

CLI0001056

Date

2018/02/27

Revision N°

0

Prices valid until

2018/03/06

Your Order N°**Processed by**

Josianne Bourdon

Salesman

JOSIANNE

Carrier

OUELLE SDV

Credit Terms

Net 30 Days

Page

1

Product N° and description	Weight	Qty U/M	Qty U/M	Price	Pcs Nb	Price	Amount
SQUARE ALU 1/2 6061-T6 * CAL-12 1778 1 X 12' STOCK	3.60	12.00 PI_\$CLB	12.00 PI		1.00	10.290	10.29 8575
ALU PLATE 2 1/4 6061-T651 RANDOM PAL-2146061-V 7464 2 X 13 1/2" X 72" 3-4 DAYS	433.76	13.50 PI2_\$CLB	13.50 PI2		2.00	1 027.890	2 055.78 171.315
PLATE 4140 H.T. 1/2 N 1 X 3 1/2" X 72" 7-10 DAYS	0.00	1.00 UN	1.00 UN		1.00	165.000	165.00 27.5
PLATE 44W 1/4 (4 X 8) P44-1448 4074 2 X 4' X 4' STOCK SHEAR CUT SHEAR 2	326.40	32.00 PI2_\$CLB	1.00 UN		2.00	101.310	202.62 6.33875
ROUND 4140 HEAT TREAT 1 3/4 (R) * R4140-134H 4911 1 X 12' STOCK COUPE A LA SCIE SCIE 1	98.14	12.00 PI_\$CLB	12.00 PI		1.00	216.920	216.92 18.07446
ROUND 4140 HT 2 3/8" DIA N 1 X 20' R/L 3-4 DAYS	0.00	1.00 UN	1.00 UN		1.00	560.000	560.00 28.00
PLATE 4140 HT 2 1/4 NS P4140-214H 9352 1 X 8" X 72" 7-10 DAYS	367.56	4.00 PI2_\$CLB	4.00 UN_\$UN		1.00	922.390	922.39 153.73164
ROUND 4140 HEAT TREAT 3/4 (R) * R4140-34H 4949 1 X 12' R/L STOCK	18.02	12.00 PI_\$CLB	12.00 PI		1.00	29.910	29.91 2.4925

Date :

Next Page...

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-HRS-P-0.500
 DATE: MAR 04 2018

PO / BATCH NO.: 039156/8048042

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 32 P12
 QUANTITY INSPECTED: 32 P12
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.500
 THICKNESS RECEIVED: 0.500
 SHEET SIZE ORDERED: AL 4X4
 SHEET SIZE RECEIVED: 4X4

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
CORROSION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<u>A572</u>
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
PHOTO REQUIRED	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<u>Heat # 724995 20100710</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL	HRC	HRB	DUR A	DUR D	WEBSTER
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 19</u> DATE: <u>9-89 MAR 04 2018</u>	SIGNED OFF BY: <u>See attached</u> DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

Hot Rolled Steel Plate

Per MT-HRS-P

It is acceptable to receive 44W Hot Rolled Steel Plate per the manufacturer's specification ASTM A572, 300W. (Equivalent to 44W)

The MT-HRS-P drawing will be updated to reflect this.

A handwritten signature in cursive script, appearing to read "M. Lee".

Michael Lee



4061 00.76601

ERDEMİR VE ÇELİK FABRİKALARI T.A.Ş.
STANDART NO: 3 500 000 TL
ÜRETİM : ERDEMİR

MÜHÜR
KİMLİK NO : 78603208709
MİNASİYON, mm : 12 700 X 2438 X 6096
TANIMLAMA & GRADE : CSA G40 21-13 / 300W/350W / 6550 TYPE 2 (ERDEMİR 3246)
ÜRÜN TİPİ & TANIMLAMA : LK : ROLLER HEAVY PLATE WITH MILL EDGE

TEST CERTIFICATE
EN 10204 - 2004 TYPE 3.1

DATE : 18/10/2017
CERTIFICATE NO : 71612651

LOT NO: 1 NO MERCURY COMPOUNDS NO WELD REPAIR
FULLY KILLED AND FINE GRAIN PRACTICE

PRODUCT INFORMATION				MECHANICAL PROPERTIES				CHEMICAL COMPOSITION, CAST ANALYSIS																		
ET NO (WEIGHT)	HEAT NO	COIL or PLATE NO	P.S or P.P	TENSILE TEST		(BEND) or TEST	Ag or BH	Y/T or T	IMPACT TEST, joule			HIGH TEMP														
				YIELD STRENGTH N/MM2	TENSILE STRENGTH N/MM2	% EL	% VAL	% VAL	1	2	3	AVR	YIELD TEMP °C	YIELD N/MM2	C %	MN %	P %	S %	SI %	AL %	CU %	NI %	V %	N PPM		
339595 112, 276		70230160461010	8													0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
	725106	72510620200110	TT	359.1	569.8	34										0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
	725106	72510620200120	TT	399.1	569.8	34										0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
	725106	72510620200310	TT	400.1	560.0	38										0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
	725106	72510620200320	TT	400.1	560.0	36										0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
	725106	72510620600110	TT	399.1	569.8	34										0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
335248 9, 140		72510620600120	TT	399.1	569.8	34										0.191	1.223	0.019	0.003	0.194	0.030	0.023	0.042	0.076	43	
	735248	73524820100210	TT	439.9	573.7	36										0.197	1.445	0.018	0.002	0.204	0.025	0.025	0.042	0.073	54	
	735248	73524820100220	TT	409.9	573.7	36										0.197	1.445	0.018	0.002	0.204	0.025	0.025	0.042	0.073	54	
		702301811L010	6													0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
	724995	72499520100110	TT	407.0	584.5	34										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
	724995	72499520100120	TT	407.0	584.5	34										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
335011 6, 080		72499520100220	TT	400.1	576.6	36										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
	724995	72499520100310	TT	400.1	576.6	36										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
	724995	72499520100310	TT	407.0	584.5	34										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
	724995	72499520100320	TT	407.0	584.5	34										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
		702301811L010	4													0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
	724995	72499520100410	TT	409.1	576.6	36										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64	
724995	72499520100420	TT	400.1	576.6	36										0.195	1.339	0.021	0.003	0.220	0.030	0.028	0.042	0.075	64		
735248	73524820100410	TT	409.9	573.7	36										0.197	1.445	0.018	0.002	0.204	0.025	0.025	0.042	0.073	54		

THE MANUFACTURER HEREBY CERTIFIES THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN MADE BY THE BASIC OXYGEN PROCESS AND TESTED IN ACCORDANCE WITH THE RULES OF EN 10204 TYPE 3.1, ASTM A572-5 300W/350W / 6550 TYPE 2 (ERDEMİR 3246) WITH SATISFACTORY RESULTS



İTİFAK : MM 1416 E ERTİT Transverse Longitudinal 50 mm of Steel P.P. 600 of Plate
İTİFAK : İstanbul Head Office : 0352 0006 4200 0000 Trade Registry, Nispetiye, İstanbul (Gözetim)
İTİFAK : İstanbul Branches : Marmara - Etiler No 6 34745 Başkent SİĞİRCİ

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061 T6 B0.500x00.500

PO / BATCH NO.: 039176 / 5048043

DATE: MAR 04 2018

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 20'
 QUANTITY INSPECTED: 20'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.500
 THICKNESS RECEIVED: 0.500
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	<u>Astm B221</u>
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	<u>Heat # 33931</u>
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u>	SIGNED OFF BY: _____
DATE: <u>9-89 MAR 04 2018</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR

SPECIFICATION: QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221

PART NUMBER: M6061T6B | T.TTT | X | WWW.WWWW |
THICK | WIDTH

WHERE "T.TTT" = THICKNESS IN INCHES
"WWW.WWWW" = WIDTH IN INCHES

E.G. 1.0" X 12.0" BAR = M6061T6B1.000X12.000

RELEASED
R 2009-05-03
MD

B	REMOVE QQ-A-250/11 OPTION, REFORMAT NOTES, ADD ASTM B211/B221 (ZN D7-1)	CP	09.07.13
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN	DS		
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	09.07.13		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M6061T6B			
SHEET 1 OF 1			
TITLE 6061-T6 BAR			
SCALE NTS			
DATE 09.07.13			
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M4140N-R0.750
 DATE: MAR 04 2018

PO / BATCH NO: 039156/5048046

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 12'
 QUANTITY INSPECTED: 12'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.750
 THICKNESS RECEIVED: 0.750
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	<u>Aston A29</u>
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	<u>Heat # M57574</u>
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS</u> <u>11</u>	SIGNED OFF BY: _____		
DATE: <u>9-89</u> <u>MAR 04 2018</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

8 7 6 5 4 3 2 1

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-790	17.12.13	VM	ML
B	MIN & MAX Rc CHANGED	18-523	18.01.24	VM	ML
C	ADD AISI 4142	18-544	18.02.14	ML	ML

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140 / 4142 STEEL BAR
MINIMUM ROCKWELL C = 28 Rc
MAXIMUM ROCKWELL C = 32 Rc

SPECIFICATION: ASTM A29, AMS 6349, AMS 6382, AMS 6529, MIL-S-5626, MIL-S-24093

PART NUMBER: MT-4140-B-(T.TTT) x (W.WWW)
WHERE "T.TTT" = THICKNESS IN INCHES
WHERE "W.WWW" = WIDTH IN INCHES
EX. 4.0" x 6.0" BAR = MT-4140-B-4.000x6.000

DART AEROSPACE		Newmarket, Ontario, Canada	
TITLE AISI 4140 / 4142 STEEL BAR			
PART NO. MT-4140-B		REV C	
TOOL NO.			
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES AND DECIMALS THEREOF DIMENSIONS ARE TO BE INTERPRETED PER ASME Y14.5-2004 TOLERANCES: FRACTIONS ± .01 DECIMALS ± .01 ANGLES ± .1° SURF FINISH: 125 SURF TREATMENT: NONE APPROVED BY: ML 02/14/2018 SCALE: NTS COPRIGHT © 2007 BY DART AEROSPACE LTD. THIS DOCUMENT IS UNCLASSIFIED AND IS IN THE PUBLIC DOMAIN. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.			

Ngla

8 7 6 5 4 3 2 1

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-R1.750
 DATE: MAR 04 2018

PO / BATCH NO.: 039156/5048049

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 12
 QUANTITY INSPECTED: 12
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.750
 THICKNESS RECEIVED: 1.750
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	A304
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat # 75069193
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-89 MAR 04 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



DESIGN #	DRAWN BY #	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. M4140H-R	REV. A SHEET 1 OF 1
DATE 05.02.21		TITLE 4140 ROUND BAR	SCALE 1:1
A	05.02.21	NEW ISSUE	

PURCHASE MATERIAL: AISI 4140H ROUND BAR

PER AISI 4140 OR ASTM A304-02 / -A-434-BC /

-A193-03-GRADE-B7 / -A29-03 / -A322-91 OR

UNS # - G41400

MINIMUM ULTIMATE TENSILE STRENGTH = 117 KSI

MINIMUM YIELD TENSILE STRENGTH = 66 KSI

PART NUMBER: M4140H-R | D.DDD | WHERE D.DDD = DIAMETER IN INCHES
DIA

EG. $\frac{7}{8}$ " ROUND BAR = M4140H-R0.875

RELEASED
5.15.15

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MEHRP. 0.250
 DATE: MAR 04 2018

PO / BATCH NO.: 039156/5048044

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 32^m2
 QUANTITY INSPECTED: 32^m2
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 0.250
 THICKNESS RECEIVED: 0.250
 SHEET SIZE ORDERED: 4x4
 SHEET SIZE RECEIVED: 4x4

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	N	
CORRECT FINISH	Y	N	
CORROSION	Y	N	
CORRECT GRAIN DIRECTION	Y	N	
CORRECT MATERIAL PER M-DRAWING	Y	N	44W
CORRECT THICKNESS	Y	N	
PHOTO REQUIRED	Y	N	
CORRECT REF # TO LINK CERT	Y	N	Heat # W76550
CORRECT MATERIAL IDENTIFICATION	Y	N	
CORRECT M# ON THE MATERIAL	Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u>	SIGNED OFF BY: _____
DATE: <u>9-89 MAR 04 2018</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

8 7 6 5 4 3 2 1

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
B	REMOVED LENGTH AND WIDTH DIMENSIONS	17-675	28/09/2017	SAC	WM

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL:

SPECIFICATION:

PART NUMBER:

EXAMPLE:

HOT ROLLED STEEL PLATE

ASTM A36 OR ASTM A1011 OR 44W OR ASTM A1018

MT-HRS-P-[T.TTT]

WHERE T.TTT IS PLATE THICKNESS IN INCHES

MT-HRS-P-0.750

TOLERANCES PER MANUFACTURER SPECIFICATIONS

DART AEROSPACE		Headquarters, Ontario, Canada	
HOT ROLLED STEEL PLATE			
DESIGN BY:	SAC 09/02/2017	MT-HRS-P	REV B
CHECKED:	WM 09/02/2017	1. X1 2. X2 3. X3 4. X4 5. X5 6. X6 7. X7 8. X8 9. X9 10. X10 11. X11 12. X12 13. X13 14. X14 15. X15 16. X16 17. X17 18. X18 19. X19 20. X20 21. X21 22. X22 23. X23 24. X24 25. X25 26. X26 27. X27 28. X28 29. X29 30. X30 31. X31 32. X32 33. X33 34. X34 35. X35 36. X36 37. X37 38. X38 39. X39 40. X40 41. X41 42. X42 43. X43 44. X44 45. X45 46. X46 47. X47 48. X48 49. X49 50. X50 51. X51 52. X52 53. X53 54. X54 55. X55 56. X56 57. X57 58. X58 59. X59 60. X60 61. X61 62. X62 63. X63 64. X64 65. X65 66. X66 67. X67 68. X68 69. X69 70. X70 71. X71 72. X72 73. X73 74. X74 75. X75 76. X76 77. X77 78. X78 79. X79 80. X80 81. X81 82. X82 83. X83 84. X84 85. X85 86. X86 87. X87 88. X88 89. X89 90. X90 91. X91 92. X92 93. X93 94. X94 95. X95 96. X96 97. X97 98. X98 99. X99 100. X100 101. X101 102. X102 103. X103 104. X104 105. X105 106. X106 107. X107 108. X108 109. X109 110. X110 111. X111 112. X112 113. X113 114. X114 115. X115 116. X116 117. X117 118. X118 119. 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X519 520. X520 521. X521 522. X522 523. X523 524. X524 525. X525 526. X526 527. X527 528. X528 529. X529 530. X530 531. X531 532. X532 533. X533 534. X534 535. X535 536. X536 537. X537 538. X538 539. X539 540. X540 541. X541 542. X542 543. X543 544. X544 545. X545 546. X546 547. X547 548. X548 549. X549 550. X550 551. X551 552. X552 553. X553 554. X554 555. X555 556. X556 557. X557 558. X558 559. X559 560. X560 561. X561 562. X562 563. X563 564. X564 565. X565 566. X566 567. X567 568. X568 569. X569 570. X570 571. X571 572. X572 573. X573 574. X574 575. X575 576. X576 577. X577 578. X578 579. X579 580. X580 581. X581 582. X582 583. X583 584. X584 585. X585 586. X586 587. X587 588. X588 589. X589 590. X590 591. X591 592. X592 593. X593 594. X594 595. X595 596. X596 597. X597 598. X598 599. X599 600. X600 601. X601 602. X602 603. X603 604. X604 605. X605 606. X606 607. X607 608. X608 609. X609 610. X610 611. X611 612. X612 613. X613 614. X614 615. X615 616. X616 617. X617 618. X618 619. X619 620. X620 621. X621 622. X622 623. X623 624. X624 625. X625 626. X626 627. X627 628. X628 629. X629 630. X630 631. X631 632. X632 633. X633 634. X634 635. X635 636. X636 637. X637 638. X638 639. X639 640. X640 641. X641 642. X642 643. X643 644. X644 645. X645 646. X646 647. X647 648. X648 649. X649 650. X650 651. X651 652. X652 653. X653 654. X654 655. X655 656. X656 657. X657 658. X658 659. X659 660. X660 661. X661 662. X662 663. X663 664. X664 665. X665 666. X666 667. X667 668. X668 669. X669 670. X670 671. X671 672. X672 673. X673 674. X674 675. X675 676. X676 677. X677 678. X678 679. X679 680. X680 681. X681 682. X682 683. X683 684. X684 685. X685 686. X686 687. X687 688. X688 689. X689 690. X690 691. X691 692. X692 693. X693 694. X694 695. X695 696. X696 697. X697 698. X698 699. X699 700. X700 701. X701 702. X702 703. X703 704. X704 705. X705 706. X706 707. X707 708. X708 709. X709 710. X710 711. X711 712. X712 713. X713 714. X714 715. X715 716. X716 717. X717 718. X718 719. X719 720. X720 721. X721 722. X722 723. X723 724. X724 725. X725 726. X726 727. X727 728. X728 729. X729 730. X730 731. X731 732. X732 733. X733 734. X734 735. X735 736. X736 737. X737 738. X738 739. X739 740. X740 741. X741 742. X742 743. X743 744. X744 745. X745 746. X746 747. X747 748. X748 749. X749 750. X750 751. X751 752. X752 753. X753 754. X754 755. X755 756. X756 757. X757 758. X758 759. X759 760. X760 761. X761 762. X762 763. X763 764. X764 765. X765 766. X766 767. X767 768. X768 769. X769 770. X770 771. X771 772. X772 773. X773 774. X774 775. X775 776. X776 777. X777 778. X778 779. X779 780. X780 781. X781 782. X782 783. X783 784. X784 785. X785 786. X786 787. X787 788. X788 789. X789 790. X790 791. X791 792. X792 793. X793 794. X794 795. X795 796. X796 797. X797 798. X798 799. X799 800. X800 801. X801 802. X802 803. X803 804. X804 805. X805 806. X806 807. X807 808. X808 809. X809 810. X810 811. X811 812. X812 813. X813 814. X814 815. X815 816. X816 817. X817 818. X818 819. X819 820. X820 821. X821 822. X822 823. X823 824. X824 825. X825 826. X826 827. X827 828. X828 829. X829 830. X830 831. X831 832. X832 833. X833 834. X834 835. X835 836. X836 837. X837 838. X838 839. X839 840. X840 841. X841 842. X842 843. X843 844. X844 845. X845 846. X846 847. X847 848. X848 849. X849 850. X850 851. X851 852. X852 853. X853 854. X854 855. X855 856. X856 857. X857 858. X858 859. X859 860. X860 861. X861 862. X862 863. X863 864. X864 865. X865 866. X866 867. X867 868. X868 869. X869 870. X870 871. X871 872. X872 873. X873 874. X874 875. X875 876. X876 877. X877 878. X878 879. X879 880. X880 881. X881 882. X882 883. X883 884. X884 885. X885 886. X886 887. X887 888. X888 889. X889 890. X890 891. X891 892. X892 893. X893 894. X894 895. X895 896. X896 897. X897 898. X898 899. X899 900. X900 901. X901 902. X902 903. X903 904. X904 905. X905 906. X906 907. X907 908. X908 909. X909 910. X910 911. X911 912. X912 913. X913 914. X914 915. X915 916. X916 917. X917 918. X918 919. 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BON DE LIVRAISON

OK-1407
49224

VENDU À
ACIERS TRANSBEC (1997) LTÉE
4054, BOUL. LE CORBUSIER
#201
LAVAL, QC
H7L 5R2
NO CLIENT: 3693

LIVRÉ À
ACIER OUELLETTE
22, BOUL. J-F KENNEDY
ST-JEROME, QC J7Y 4B6
NO CLIENT: L-3693-3

NO DU BON	DATE DE LIVRAISON
115350	29/Sep/16
NIR:	NO DE TELEPHONE DU CLIENT:
R-015478-2	450-963-3693
NO COMMANDE CLIENT:	REPRESENTANT:
OU-46506	Guillaume Morin
CHAUFFEUR:	NO COMMANDE EXTRUDEX:
JIMMY AYOTTE	100655

NO ITEM	NO DE FILIERE	NO PIECE CLIENT	DESCRIPTION ALLAGE / TREMPAGE	LONGUEUR	FINITION	COMMANDE CLIENT NB PIECES	À VENIR NB PIECES KILOS	NO TICKET NB PESÉES	EN LIVRAISON NB PIECES KILOS	%
30	SA00503		TIGE CARREE 1/2" 6061/T6	6096mm	NATUREL MILL	186	0	383762	180	OK
							100655-30-1A1	1	190	514
							Sous-Total:			

Mill Test (Tensile Properties of Aluminum)

3 MILL TEST + CERT. CONFORMITE

Test Date.: 23/Sep/16

Order No.	Alloy	Temper	Yield (ksi)	Ultimate Tensile (ksi)	Total Elongation (%)	Hardness (Rockwell E)	Conductivity %	Report No.
100655-30-1A1	6061	T6	39.3	43.7	16.65	92.10		6163

Certificate of Compliance (Certificat de conformité)

Normes: (ANSI H35.1-1997) & (ASTM B221)

Order No. Hardness (Webster) #1 #2 Cast No. CAST CHEMICAL COMPOSITION:

100655-30-1A	1.5	1.5	33931	Al	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	B	Zr	Bi	Pb	Sn	Sr	Co
				98.01	0.57	0.23	0.19	0.07	0.84	0.05	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

25 JF K

VÉRIFICATION DE MATÉRIEL
DATE 30/09/16
VÉRIFIÉ PAR

SIGNATURE
CLIENT:

SSAB

Test Certificate

48918

1051 Tapscott Road, Toronto, ON M1X 1A1, CA

Customer:
LES ACIERS TRANSBEC LTEE
4054 BOUL. CORBUSIER #201
L'AVAIL
PQ H7LSR2

Customer P.O. No.: OU-48320

Mill Order No.: 41-514679-01

Shipping Manifest: TT080403

Product Description: CSA G40.21(2013) 44W/800W / ASIM A36(14)
A709(16A)36/ASME SA36(17)

Ship Date: 11 Sep 17
Cert Date: 11 Sep 17
Cert No: 021136814
(Page 1 of 1)

Size: 0.250 X 96.00 X 240.0 (IN)

Heat Id	Piece Id	Tested Thickness	Tensiles				Charpy Impact Tests				BDWTT Temp %Shr
			Tst Loc (KSI)	YS (KSI)	UTS (KSI)	%RA	Elong 2in 8in	Tst Dir	Abs. Energy 1 2 3 Avg	% Shear 1 2 3 Avg	
A7H022	0184	0.254 (T.L.C)	58	59	75	28	26	T			
A7H022	0185	0.254 (T.L.C)	59	56	75	28	28	T			
A7H056	0294	0.253 (T.L.C)	51	51	72	25	25	T			
B7H542	0204	0.253 (T.L.C)	64	64	75	25	25	T			
B7H542	0206	0.253 (T.L.C)	67	56	75	25	25	T			
B7H542	0206	0.253 (T.L.C)	64	53	71	31	27	T			
E7G046	0966	0.253 (T.L.C)	64	58	72	25	25	T			
E7G046	0966	0.253 (T.L.C)	60	58	71	25	27	T			
W7G550	0243	0.253 (T.L.C)	51	59	70	25	25	T			

Chemical Analysis

Heat Id	C	Mn	P	S	Si	Total	Sol Al	Cu	Ni	Cr	Mo	Cb	V	Ti	B	N	ORGN
A7H022	.16	.82	.017	.003	.06	.028	.026	.27	.11	.16	.03	.001	.005	.007	.0001	.0081	CAN
A7H056	.15	.81	.012	.001	.07	.030	.026	.34	.08	.13	.02	.001	.005	.006	.0001	.0081	CAN
B7H542	.15	.82	.016	.002	.06	.026	.024	.27	.11	.13	.03	.001	.003	.007	.0001	.0077	CAN
E7G046	.15	.82	.011	<.001	.03	.034	.032	.28	.16	.14	.05	.001	.003	.017	.0001	.0084	CAN
W7G550	.16	.82	.009	.005	.03	.034	.032	.23	.13	.09	.02	.001	.003	.018	.0001	.0087	CAN

KILLED STEEL
MERCURY IS NOT A METALLURGICAL COMPONENT OF THE STEEL AND NO MERCURY WAS INTENTIONALLY ADDED DURING THE MANUFACTURE OF THIS PRODUCT.
KILLED STEEL, PRODUCED TO A FINE GRAIN PRACTICE
MTR EN 10204:2004 INSPECTION CERTIFICATE 3.1 COMPLIANT
CTL IN CANADA FROM COIL MADE AND Poured IN U.S.A.
MATERIAL MARKED BELOW WITH AN ASTERISK IS PRODUCED FROM COIL

PRODUCTS SHIPPED:

* E7G046	0966	PCES: 9, LBS: 14706	* A7H022	0202	PCES: 9, LBS: 14706
* B7H542	0203	PCES: 18, LBS: 29412	* W7G550	0243	PCES: 9, LBS: 14706
* A7H056	0294	PCES: 5, LBS: 8170			

Cust Part # :

WE HEREBY CERTIFY THAT THIS MATERIAL WAS TESTED IN ACCORDANCE WITH, AND MEETS THE REQUIREMENTS OF, THE APPROPRIATE SPECIFICATION

Daryl Banman

CHECKED BY

Eaton Steel Bar Company Inspection Certificate 1682448

EN 10204:2004-3.1

Customer

BOL Ship Date

221248 21-Nov-2017

Customer PO B36384

Item 11132 rev 004

Customer Item V122432

Item Description 1-3/4" HR RD 4140/21MM 24H SBO QTSF FG MST

All bundles listed below were produced using steel from Heat 75069183 issued by GERDAU-MONROE and were completed from Eaton Steel Job 826591.

Chemistry	Description	Value	Units	Mechanical	Description	Value	Units
C	Carbon	0.4000	PMCT	TENSILE PSI	Tensile Strength in PSI Units	14100	PSI
Mn	Manganese	0.8600	PMCT	YIELD PSI	Yield Strength in PSI Units	12300	PSI
P	Phosphorus	0.0130	PMCT	ELONGATION	Percent Elongation	21.00	PCT
S	Sulfur	0.0210	PMCT	REDUCTION	Percent Reduction in Area	61.0	PCT
Si	Silicon	0.2400	PMCT	BRINELL SURF	Brinell Surface	297.0	BHN
Ni	Nickel	0.1900	PMCT	Heat Treating	Description	Value	Units
Cr	Chromium	0.9800	PMCT	TEMPER TEMP F	Temper Temp in Fahrenheit	500 - 2500	DEGF
Mo	Molybdenum	0.1600	PMCT	AUSTEN TEMP F	Austenitizing Temp in Fahrenheit	1600 - 1700	DEGF
Al	Aluminum	0.0200	PMCT	SR TEMP F	Stress Relief Temp in Fahrenheit	500 - 2500	DEGF
Cu	Copper	0.2200	PMCT	MAGNETISM-HI	Magnetism in Gauss	0 - 20	GN
V	Vanadium	0.0030	PMCT	TIME AT TEMP	Time at Temperature	Report	
Co	Columbium	0.0030	PMCT	QUENCH MEDIA	Quench Media Requirements	PEN/O	
N	Nitrogen	0.0000	PMCT	STRESS FREE	Cast stress free	CERTIFIED	
DI	Ideal Diameter	5.2200	IN	HT4140-42QT	Quench & Temper	CONFORMS	
Clearliness	Description	Value	Units	Mill Processing	Description	Value	Units
MACRO ETCH	Report macro etch results.			MEET COUNTRY	Melted in Country	USA	
Geometry	Description	Value	Units	ROLLED COUNTRY	Rolled in Country	USA	
DIAMETER	Diameter	1.7344 - 1.7656	IN	RED RATIO	Reduction Ratio	28.30	RED
Journey	Description	Value	Units	ASTM Standard	Description	Value	Units
J1	1/16 inch from Quenched End	56	HRC	A434-908-BC	Grade B7	CONFORMS	
J2	2/16 inch from Quenched End	56	HRC	Structure	Description	Value	Units
J3	3/16 inch from Quenched End	56	HRC	PERCENT TM	Percent Tempered Martensite	80 - 100	PCT
J4	4/16 inch from Quenched End	56	HRC	MICROSTRUCTURE	Reported Microstructure	TM	
J5	5/16 inch from Quenched End	56	HRC	Tag Number	Qty	Units	
J6	6/16 inch from Quenched End	56	HRC	022-2144708	3940	LBS	24ft.2in
J7	7/16 inch from Quenched End	55	HRC				
J8	8/16 inch from Quenched End	54	HRC				
J9	9/16 inch from Quenched End	53	HRC				
J10	10/16 inch from Quenched End	51	HRC				
J11	11/16 inch from Quenched End	50	HRC				
J12	12/16 inch from Quenched End	49	HRC				
J14	14/16 inch from Quenched End	47	HRC				
J16	16/16 inch from Quenched End	45	HRC				
J18	18/16 inch from Quenched End	44	HRC				
J20	20/16 inch from Quenched End	43	HRC				
J22	22/16 inch from Quenched End	43	HRC				
J24	24/16 inch from Quenched End	41	HRC				
J28	28/16 inch from Quenched End	39	HRC				
J32	32/16 inch from Quenched End	37	HRC				

Bundle tags with Eaton Steel identifiers reference the steel grade, heat, purchase order number where applicable, part number, product description and quantity. Material produced in accordance with Eaton Steel's Quality Manual QM-00002 Rev 0 dated 11/21/2013.

We hereby certify the above to be in conformance, and a true copy of data represented in company records. This steel was not subject to weld repair or exposed to mercury while in the possession of Eaton Steel.

Created on 21-Nov-2017

Thomas Snabes, Corporate Metallurgist

This document was prepared by means of electronic data processing and is valid without signature.

10221 Capital Avenue, Oak Park, MI 48237 USA

http://www.eatonsteel.com

Tel: 248-398-3434

Fax: 248-398-1434



GERDAU SPECIAL STEEL NORTH AMERICA
5591 MORRILL ROAD
JACKSON, MICHIGAN 49201

CERTIFIED MATERIAL TEST REPORT

CUSTOMER ORDER NUMBER	10902/4140/42MM	GERDAU PART NUMBER	35069193	WELD ORDER NUMBER	314676 101	DATE	10/19/17
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210mm Billet

ORDERED TO
PATRICE GRAYTON
EATON STEEL CORPORATION
10221 CAPITAL

EATON STEEL CORPORATION
C/O APOLLO HEAT TREAT
10400 CAPITAL STREET

OAK PARK, MI 48237

OAK PARK, MI 48237

ORDERED

4140	1 3/4"	RND	24' 2"
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SPECIFICATION 10902 REVISION 5, 12/12/13, A304-16, A322-13

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Sn	Al
0.40	0.86	0.013	0.021	0.24	0.19	0.98	0.16	0.22	0.009	0.020
V	Nb									
0.003	0.003									

GRAIN SIZE

SPECIFICATION ASTM E112

FINE GRAIN 5-8

HARDENABILITY

SPECIFICATION ASTM A255/A304

THEORETICAL																								
J1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32	34
56	56	56	56	56	56	55	54	53	51	50	49	48	47	46	45	44	43	43	41	41	39	39	37	

DI CALCULATION

SPECIFICATION CAT 1E0024

5.22

REDUCTION RATIO

SPECIFICATION ITEM 10902

RATIO= 28.3 TO 1.0

PAGE 1

We certify that these data are correct and in compliance with specified requirements.

Gerdau North America
3000 East Front Street
Monroe, MI 48039
Patrick Doyle Patrick Doyle

CONTINUED ON PAGE 2



GERDAU

GERDAU SPECIAL STEEL, NORTH AMERICA
3551 MORRILL ROAD
JACKSON, MICHIGAN 49201

CERTIFIED MATERIAL TEST REPORT

GERDAU ORDER NUMBER	GERDAU PART NUMBER	TEST NUMBER	MOCK ORDER NUMBER	DATE
164576	10902/4140/42MM	75069193	314676 101	10/19/17

210mm Billet

SHIP TO

REPORT TO
PATRICE GRAFFON
EATON STEEL CORPORATION
10221 CAPITAL

EATON STEEL CORPORATION
C/O APOLLO HEAT TREAT
10400 CAPITAL STREET
OAK PARK, MI 48237

OAK PARK, MI 48237

ORDERED

GRADE	SIZE	RND	LENGTH
4140	1 3/4"		24' 2"

SPECIFICATION 10902 REVISION 6, 12/12/13; A304-16; A322-13

RESIDUAL MAX SPECIFICATION ITEM 10902

P+S = 0.0340

RESIDUAL MIN SPECIFICATION ITEM 10902

P+S = 0.0340

MELTED/ROLLED @ GERDAU MONROE; MEETS SAE J422 S5/05 RATING

(WORST FIELD); ASTM B381 MACRO ETCH SATISFACTORY: 91/R1/C1; ASTM A29/A29M-16

** MATERIAL 100% MELTED AND MANUFACTURED IN THE U.S.A. BY THE ELECTRIC
ARC FURNACE AND CONTINUOUS CASTING METHOD. THE PRODUCT HAS NOT
BEEN REPAIRED BY WELDING AND THIS MATERIAL HAS NOT BEEN EXPOSED
TO MERCURY OR TO ANY OTHER METAL ALLOY THAT IS LIQUID AT AMBIENT
TEMPERATURES DURING PROCESSING OR WHILE IN OUR POSSESSION.
GERDAU MONITORS ALL INCOMING SCRAP AND ALL HEATS OF STEEL TO ENSURE THAT
PRODUCTS SHIPPED ARE FREE OF RADIOACTIVE MATERIAL.

PAGE 2 OF 2

We certify that these data are correct and in compliance with specified requirements.

Gerdau Monroe

3000 East 8th Street

Monroe, MI 48865

Patricia Doyle Patricia Doyle

Lab Services Report



10221 Capital Avenue
Oak Park, MI 48237
(248)543-3578 telephone
(248)398-1434 facsimile

Bill To: Apollo Heat Treating and Processing Company, L.L.C.
10400 Capital Avenue
Oak Park, MI

Ship To: Apollo Heat Treating and Processing Company, L.L.C.
10400 Capital Avenue
Oak Park, MI

Attn: Randy Gail

rcall@apolloyh.com

Report Date: 11/8/2017
Report ID: 17-4353
Request ID:

This report contains results for the indicated test(s) performed on the following material:

Part No.	11132	Heat	HR	Shape	Round	PC #	82631
Size	1.750	Order #	4140	Work Order	82631		
Titan Sample ID		Customer Sample ID					
17-4353-1		75069193		82631	JOB 3088		

Report Approved By: Steve Avery

Mechanical Testing

ASTM E8M-16a

ASTM E10-17

Sample ID	Ultimate Tensile (ksi)	0.2% Offset Yield (ksi)	Elongation (in/in)	Reduction of Area (%)	HSW (ksi)
17-4353-1	141,000	123,300	21	61	297

Test Comments

Mechanicals tested at Midradius



Golden Thread logo. Any services within a section marked with * are not part of Titan Metallurgy's current A2LA accreditation. All testing performed by Titan Metallurgy was done at ambient (room) temperature.

Report ID: 17-4353
Page 1 of 1



10400 Capital Avenue • Oak Park, Michigan 48237 • (248) 398-3434

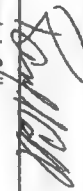
CERTIFICATION OF HEAT TREATMENT

Date: 11 / 14 / 2017
Certification Number: 17 - 0803
Customer Order Number: 826531
Part Number: 10902 - 11132
Heat Number: 75069193
Heat Treat Job Number: 3088

Material: 4140
Quantity: 324 Pcs.
Weight: 64,388 Lbs.
Description: 1.7500" Diameter x 24" Length
Per Specification: ESH HT4140 - 42QT

	Temperature	Time at Heat	Coolant
Normalized	N/A		
Preheat	N/A		
Austenitized/Hardened	1550 °F	45 Minutes	
Spray Quenched	103.0 °F - 104.9 °F	N/A	Water
Temper	1220 °F	1 Hour 15 Minutes	Air Cooled to Ambient
Temper	N/A		

Method of heat treat monitor, set point thermocouple (Type K), Equipment calibrated per AMS2750F.
We hereby certify the above material has been treated in the manner described are correct as
contained in the records of Apollo Heat Treating and Processing, LLC.


Randy L. Call
Plant Manager
Apollo Heat Treating & Processing, LLC

EN 10204:2004-3.1



GERDAU SPECIAL STEEL NORTH AMERICA
5591 MONROE ROAD
DUNCAN, MICHIGAN 48201

CERTIFIED MATERIAL TEST REPORT				
CERTIFIED ORDER NUMBER	CERTIFIED ALLOT NUMBER	TEST NUMBER	MOCK ORDER NUMBER	DATE
142324	1012462/4140EVD	M52574	283416 102	11/05/13
		TEST TO		
		Daniel		

ORDER TO
DAN MCNAUGHTON
EATON STEEL CORPORATION
10221 CAPITAL
OAK PARK, MI 48237

EATON STEEL CORPORATION &
VULCAN HEAT TREATING
10 CROSSCREEK TRAIL
PELHAM, AL 35124

ORDERED	TESTED	REMARKS
4140	0 3/4"	20' 2"

ITEM 1012462 REV 1 DTD 03/05/13 A29/A29M-12; A322-07

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Sn	Al
0.41	0.85	0.012	0.020	0.26	0.09	1.00	0.18	0.21	0.008	0.049
V	Nb									
0.002	0.002									

GRAIN SIZE SPECIFICATION ASTM E112 FINE GRAIN 5-8

HARDENABILITY SPECIFICATION ASTM A255/A304

THEORETICAL	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32	34
51	2	3	4																		
57	57	57	57	57	57	55	54	52	50	48	46	45	45	43	40	38					

DI CALCULATION SPECIFICATION CAT 1B0024

5.31

REDUCTION RATIO SPECIFICATION ITEM 1012462

RATIO= 81.5 TO 1.0

PAGE 1

We certify that these data are correct and in compliance with specified requirements.

Gerdau Monroe
3000 East Front Street
Monroe, MI 48161

Quality Assurance Representative

Wendy J. Craig

CONTINUED ON PAGE 2



GERDAU SPECIAL STEEL NORTH AMERICA
5531 MORRILL ROAD
JACKSON, MICHIGAN 49201

CERTIFIED MATERIAL TEST REPORT

CUSTOMER ORDER NUMBER	CUSTOMER PART NUMBER	DATE ORDERED	DATE SHIPPED	DATE
142324	1012462/4140EFVD	M52574	283416 102	11/05/13

SHIP TO
Danieli Cast

REPORT TO
DAN MCNAUGHTON
EATON STEEL CORPORATION
10221 CAPITAL
OAK PARK, MI 48237

EATON STEEL CORPORATION
VULCAN HEAT TREATING
10 CROSSCREEK TRAIL
PELHAM, AL 35124

ORDERED

GRADE	SIZE	RND	LENGTH
4140	0 3/4"	RND	20' 2"

ITEM 1012462 REV 1 DTD 03/05/12; A29/A29M-12; A322-07

RESIDUAL MAX SPECIFICATION ITEM 1012462

P+S = 0.0320

RESIDUAL MIN SPECIFICATION ITEM 1012462

P+S = 0.0320

ASTM E381 MACRO ETCH SATISFACTORY: 31/R1/C1; MEETS SAE J422

5S/05 RATING (WORST FIELD):

** MATERIAL 100% MELTED AND MANUFACTURED IN THE U.S.A. BY THE ELECTRIC ARC FURNACE AND CONTINUOUS CASTING METHOD. THE PRODUCT HAS NOT BEEN REPAIRED BY WELDING AND THIS MATERIAL HAS NOT BEEN EXPOSED TO MERCURY OR TO ANY OTHER METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURES DURING PROCESSING OR WHILE IN OUR POSSESSION. GERDAU MONITORS ALL INCOMING SCRAP AND ALL HEATS OF STEEL TO ENSURE THAT PRODUCTS SHIPPED ARE FREE OF RADIOACTIVE MATERIAL.

PAGE 2 OF 2

We certify that these data are correct and in compliance with specified requirements.

Gerdau Monroe
3000 East Front Street
Monroe, MI 48161

Wendy J. Cray
Wendy J. Cray

Quality Assurance Representative



Vulcan Threaded Products
 10 Cross Creek Trail
 Phenix, AL 35126
 Tel (205) 625-9100
 Fax (205) 625-9150

JOB MATERIAL CERTIFICATION

Job No: 344313

Job Information

Certified Date: 12/7/13

Containers: S7520422 S7528364 S7528928

Customer: Ellison Steel Corporation

20001 Trolley Industrial
 Ship To: Drive
 Taylor, MI 48160

Customer Part No: 1012493-001

Customer PO No: 143436-75373

Order No: 201403

Shipped Qty: 24019 bs

Line No: 1

Note: **W0753733**

Part Information

Part No: HRB 4140 750240 Q&T ES

Name: Hot Roll Bars

Part Group: HT TOLL

Alloy Type: 4100

Piece Weight: 30.058

Alloy - Temper: 4140 -

Applicable Specifications

Type

ASTM A193 B7/ASME SA193 B7

Specification

Rev

2012a

Amend

Option

Customer Specification

Test Results

See following pages for tests

Certified Chemical Analysis

Heat No.	Origin	C	Mn	P	S	Si	Al	Ni	Cr	Mo	Co	W	As	Se	Fe	Other	Notes
W0753733	USA	0.410	0.18	0.013	0.008	0.18	0.05	0.14	0.19	0.005	0.01	0.005	0.005	0.005	0.005	0.005	

Notes

Material was manufactured, tested and inspected in accordance with Vulcan Threaded Products Inc. Quality Assurance Program and Manual Rev. A, dated 12/1/13. Material was tested and inspected in Quenched and Tempered - Stress Free. No weld repair performed on the material. No Mercury used in the production of this material. Heat Treated

Average Grain Reading: <15
 The microstructure consisted of 100% tempered martensite from the surface to the center.
 Aut tempering temp. >1700 degrees F
 Test specimens meet the ASTM A370-12a specifications

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cert 377068

Ullcan THREADED PRODUCTS, INC.		Vulcan Threaded Products 10 Cross Creek Trail Pellham, AL 36124 Tel (205) 620-5100 Fax (205) 620-5150	
JOB MATERIAL CERTIFICATION			
Job No: 344313		Job Information	
Container: S7520422 S7526364 S7526926		Certified Date: 12/7/13	
Test Results			
Test No: 26790 Test: Quench & Temper Physicals (Lbs)			
Description	Twists (in)	Yield (ksi)	Elongation (%)
Quench & Temper	142,800	135,000	17.8
Physicals Results			
Test No: 25759 Test: Quench & Temper Information (Lbs)			
Description	Twisting Time (s)	Run Speed (RPM)	Quench Water Temp (F)
Quench & Temper Information Results	1317	43.20	87.9
			Note
			12/7/13
Chimberlain, David - Supervisor			Date
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